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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/698,274	10/30/2000	Shinya Yamaguchi	520.39251X00	6630

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EXAMINER
ABRAHAM, FETSUM

ART UNIT	PAPER NUMBER
2826	15

DATE MAILED: 03/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/698,274	YAMAGUCHI ET AL.	
	Examiner	Art Unit	
	Fetsum Abraham	2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 January 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *6,7,12,19,30,31,35,37 and 38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *all* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

Fetsum Abraham 3/21/03

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Claims rejection

The allowed claims in the previous action have now been withdrawn in light of a newly discovered patent enclosed.

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 6,7,12,30,31,35,37,38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al (6,348,368).

The patent discloses a crystallized active transistor layer with grains joined by (111) twin boundaries (see column 14, 42-67). In the same column, last paragraph, the patent also teaches that the plane orientation of the crystal in the lattice can be arranged to be (110). In claim 3, it discusses the type of materials used as catalytic agent in the layer to transform the amorphous material into a crystalline material. One of the used agents is Pb, which is a group 4 material. Clearly, a gate electrode is mounted on the active layer via gate insulation layer since the product is TFT. Although the patent does not match word to word with the expressions of the claimed language, it would have been obvious to one skilled in the art to conclude that the patent reads on the claimed invention by virtue of device material and device characteristics similarities.

Further, although the patent omits to disclose the claimed "alloys" of the agents as part of the agents, claim 3 indicates the possible existence of other associated materials or alloys with the

agents by the expression "at least one selected from" to indicate material types associated with the agents. Therefore, it would have been obvious to one skilled in the art to conclude the existence of agent alloys in the crystallized TFT layer.

As for claims 6,7,38 the crystallizing agents of Yamazaki are oriented parallel to the substrate. The claimed insulating substrates are also most common substrates in TFT formation. Besides, the **plane orientation** with (111) crystal oriented layer is taught to be (110) (see column 14, last paragraph). As for the claimed layer thickness or general layer dimension is notoriously known as one of the most common variables that differ from a design to another based on an expected result. The magnitude given is also known to be within the range of "thin films" as understood in the art. Besides, the specification contains no disclosure of either the critical nature of the claimed arrangement or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, the applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990). As for the mobility of the active layer, the element is again variable and heavily dependent on doping profile and concentration of crystallizing agents. Therefore, it is clear that the claimed amount of mobility alone can not be patented.

Further issues concerning claim 7, the crystal grains in the active layers of the cited references are not restricted to a defined number. Therefore, it is clear that the claimed number of crystals is also covered in the references.

As for claim 12 since currents in TFTs travel through the channel, and that the channel is the crystallized TFT with the claimed crystal orientation, it is clear that the claimed operation is met by the prior art. Further, although the exact terminologies as that of the claim such as "dendryte" is not used, it is clear that there are crystallized regions in the active layer of the prior arts.

As for claims 30,31,35 the expression "seed crystal metal" is understood to be any metalic material. And based on this understanding, it is clear that source/drain electrodes are formed on the insulating substrates of both references and between adjacent gate electrodes of adjacent TFTS.

As for claim 37, the claimed crystal orientation and angles are taught in column 14, 35-65.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over the primary reference in view of Yamazaki (6,462,723).

The primary reference discloses all subject matter but may have omitted to disclose the claimed mobility range of the transistors. However, Yamazaki teaches that the multiple TFTs in the driving and pixel circuits of the LCD device have polysilicon active layers whose mobility can be greater than 30 cm2/Vsec (see column 2, 30,35). Therefore, it would have been obvious to one skilled in the art to expect the active layers of the polysilicon based transistors of the primary reference to have the mobility taught in the secondary reference since the material under examination is polysilicon in both cases. Please note that greater than 30 covers the claimed range.

Any inquiry concerning this communication should be directed to Fetsum Abraham

at telephone number (703) 305,3793, or by E-mail at ***fetsum.abraham@uspto.gov.***

Any inquiry of a general nature or relating to the status of this application should be directed to the ***SPE of AU***:2826 at (703)308-6601, or the ***Group receptionist*** at (703) 308-0956.

Fetsum abraham

3/21/03